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ABSTRACT

In cooperative learning, as opposed to competitive and individualistic learning, students work together to accomplish shared goals. It is the most important of the three types of learning, but least used. Research indicates students will learn more, like school better, like each other better, and learn more effective social skills when cooperative learning is used. It is not simply a matter of putting students into groups to learn, but involves positive interdependence, face-to-face interaction, individual accountability, and appropriate use of interpersonal and small group skills. Among strategies necessary to implement cooperative learning are: clearly specifying lesson objectives; making plans about the cooperative learning group; explaining the academic task and cooperative goal structure to the students; monitoring effectiveness and providing assistance with interpersonal and group skills; and evaluating student achievement and helping them assess how well they collaborated with each other. The principal's role includes structuring and managing a support system for teachers, with teachers providing the basic support for each other. The report describes procedures that sample school districts followed in implementing cooperative learning, and gives the address of the Cooperative Learning Center, a resource for information. (DCS)

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Cooperative Small-Group Learning

David W. Johnson and Roger T. Johnson

Cooperative learning procedures are being used increasingly in public and private schools and colleges. As their use grows, administrators need to understand:

1. What cooperative learning is
2. The extent of research validating its effectiveness
3. The procedures teachers use to implement it within their classes
4. The procedures administrators employ to supervise teachers in its use.

Competitive, Individualistic, or Cooperative?

What is cooperative learning and how does it differ from competitive and individualistic learning? In the *competitive* classroom, students work against each other to achieve a goal that only one or a few students can attain. Students are graded on a curve, which requires them to work faster and more accurately than their peers.

Unfortunately, most students perceive school as preeminently a competitive enterprise. They constantly either work hard in school to do better than the other students or they take it easy because they do not believe they have a chance to win. In the *individualistic* classroom students work by themselves to accomplish learning goals unrelated to those of the other students. Individual goals are assigned each day, students' efforts are evaluated on a fixed set of standards, and students are rewarded accordingly. Thus, the student seeks an outcome that is personally beneficial and ignores as irrelevant the goal achievement of other students.

In the *cooperative* classroom, students work together to accomplish shared goals. Students assigned to small groups learn the assigned material and make sure that the other members of their group learn it also. A criterion-referenced evaluation system is used regularly to ensure that students are learning. In cooperative learning situations, students perceive that they can reach their learning goals only if the other students in the learning group also do so. They discuss the material to be learned with each other, help one another understand it, and encourage each other to work hard.

Cooperative learning is the most important of the three types of learning situations, but currently it is the least used. Class sessions are structured cooperatively for only 7 to 20 percent of the time (Johnson and Johnson, 1983), yet, what we know about effective instruction indicates that cooperative learning should be used when we want students to learn more, like school better, like each other better, and learn more effective social skills. Research clearly indicates that classrooms should be dominated by student cooperation.

Unfortunately, teachers often believe that they are implementing cooperative learning when in fact they are missing its essence. Putting students into groups to learn is not the same thing as structuring cooperative interdependence among students. Cooperation is *not:*

- Having students sit side by side at the same table and talk with each other as they do their individual assignments.
- Having students do a task individually with instructions that the ones who finish first are to help the slower students.
- Assigning a report to a group where one student does all the work and the others put their name on it.

Cooperation is much more than being physically near other students, discussing material with other students, helping other students, or sharing materials with other students, although each of these is important in cooperative learning.

The Basic Elements of Cooperative Learning

Four basic elements are essential for small-group learning to be cooperative. The first is *positive interdependence,* achieved by establishing mutual goals (goal interdependence); dividing labor (task interdependence); dividing materials, resources, or information among group members (resource interdependence); assigning students roles (role interdependence); and giving joint rewards (reward interdependence). For a learning situation to be cooperative, students must perceive that they are positively interdependent with other members of their learning group.

Second, cooperative learning requires students to interact *face-to-face.* The interaction patterns and verbal interchange among students promoted by the positive interdependence affect educational outcomes, not just positive interdependence.

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The third basic element of cooperative learning is *individual accountability* for mastering the assigned material. The purpose of a learning situation is to improve individual student achievement. Determining the level of each student's mastery is necessary so students can provide appropriate support and assistance to each other.

Finally, cooperative learning requires that students use *interpersonal and small-group skills appropriately*. Placing socially unskilled students in a learning group and telling them to cooperate obviously will not be successful. Students must be taught the social skills needed for collaboration and be motivated to use them. Students must also be given the time and procedures for analyzing how well their learning groups are functioning and the extent to which students are employing their social skills to help all group members to achieve and to maintain effective working relationships within the group.

A Dual Crisis

We are in a period of educational crisis, with a wide discrepancy between the instructional methods used in schools and those verified by research as most effective. Traditionally, half of our growth in productivity in the United States has come from citizens' increased skills and knowledge. Yet the achievement of our students has been steadily falling for the past 20 years. The ability of our educational system to provide society with knowledgeable, skilled, and psychologically well-adjusted individuals who are able and motivated to pursue careers in scientific and technological fields is being questioned.

A parallel crisis revolves around the large number of young people in our society who feel isolated, disconnected from their parents and peers, unattached to school and career, without purpose and direction, and lacking any distinct impression of who and what kind of person they are. Changing family and community patterns have alienated many children and adolescents; the impersonal character of many schools has not helped. As a result, our society is confronted with many individuals who are out of touch with the rest of society, unable to build and maintain meaningful relationships with others, who may exploit or abuse others, and who have no motivation to contribute to the well-being of others or society.

Placing socially unskilled students in a learning group and telling them to cooperate obviously will not be successful. Students must be taught the social skills needed for collaboration and be motivated to use them.

Cooperative learning has a major contribution to make to the solution of this crisis. Well over a thousand studies compare the relative effectiveness of cooperative, competitive, and individualistic learning. The amount of evidence supporting the use of cooperative learning procedures is considerably greater than the evidence supporting any other instructional procedure. Compared with competitive and individualistic learning (Johnson and Johnson, 1975, 1983; Johnson et al., 1981) cooperative learning promotes the following:

1. Greater mastery and retention of the facts, information, concepts, principles, and theories taught in school. The superiority of cooperative learning in conceptual learning and problem solving is especially noteworthy. In the United States, students commonly believe that a learning task is completed when they have an answer in every blank on a worksheet. Sustained effort to comprehend material seems to be rare.
2. Greater interpersonal and small-group skills needed to collaborate with others in career, family, and community settings. Collaborative competencies are the keystones to building and maintaining stable marriages, families, careers, and friendships.
3. Greater development of higher level reasoning processes and critical thinking competencies that enable students to grasp information, examine it, evaluate it for soundness, and apply it appropriately.
4. Greater intrinsic motivation to achieve higher expectations for success based on collaborative activity, and greater curiosity for additional information about the topic now and in the future.
5. Greater affinity for classmates regardless of ability level, sex, ethnic membership, social class, handicaps, or task orientation.
6. More positive attitudes toward subject areas and continuing motivation to study, enter related careers, and learn more about the subject being studied.
7. Higher self-esteem founded on self-acceptance.
8. Greater psychological health, emotional maturity, and personal identity; well-adjusted social relations.

Implementing Cooperative Learning

Principals and teachers need to be able to differentiate between effective and ineffective implementation of cooperative learning. Five major sets of strategies are necessary to structure cooperative learning:

- Clearly specifying the objectives for the lesson
- Making decisions about placing students in learning groups before the lesson is taught
- Explaining the task and the cooperative goal structure to the students
- Monitoring the effectiveness of the cooperative learning groups and intervening to provide content assistance or to help students with interpersonal and group skills
- Evaluating students' achievement and helping them assess how well they collaborated with each other.

The following steps elaborate on these strategies and provide a detailed procedure for structuring cooperative learning. Specific sample lessons may be found in Chasnoff (1979), Lyons (1980), and Roy (1982).

The Objectives

1. *Specifying the Instructional Objectives.* Two types of objectives need to be specified before the lesson begins: an *academic* objective specified at the correct level for the students and matched to the level of instruction, and a *collaborative skills* objective detailing what interpersonal and small-group skills will be emphasized during the lesson.

Decisions

2. *Determining the Size of the Group.* Cooperative learning groups range in size from two to six. When students are inexperienced in working cooperatively, when time is short, and when materials are scarce, the group should be limited to two or three. When students become more experienced and skillful they are able to manage in larger groups.

3. *Assigning Students to Groups.* Students may be grouped homogeneously or heterogeneously, but heterogeneous grouping is preferred where students from different ethnic backgrounds, sex, ability levels, and social classes work together. Random assignment of students to groups is often effective.

4. *Planning How Long Groups Will Work Together.* Some teachers assign students to groups for a semester or even a whole year. Other teachers like to maintain groups only long enough to complete one curriculum unit. In some schools, student attendance is so unpredictable that teachers form new groups each day. Sooner or later, every student should work with every classmate.

5. *Arranging the Room.* Members of a learning group should sit close enough to each other that they can share materials, talk quietly, and maintain eye contact with all group members. The teacher should have a clear access lane to every group. Circles are usually best.

6. *Planning the Instructional Materials To Promote Interdependence.* Materials must be distributed so that all students participate and achieve. Especially when students are inexperienced in collaborating, teachers will want to distribute materials which communicate that the assignment is a joint (not an individual) effort, and that students are in a "sink or swim together" learning situation. Materials can be divided like a jigsaw puzzle so that each student has only a part of what is needed to complete the task. Giving a group one copy also ensures that the students will have to work together.

7. *Assigning Roles To Ensure Interdependence.* Cooperative interdependence can also be ensured by assigning complementary and interconnected roles to group members. Such roles are the *summarizer* (restating the major conclusions or answers the group has achieved); *checker* (ensuring that all members can explain an answer or conclusion); *accuracy coach* (correcting mistakes in another member's explanations or summaries); and *elaboration-seeker* (asking other members to relate material to material previously learned).

Explaining the Academic Task and Cooperative Goal Structure

8. *Explaining the Academic Task.* Teachers explain the task clearly so that students understand the objectives of the lesson.

9. *Structuring Positive Goal Interdependence.* Teachers communicate that students have a *group* goal and must work collaboratively. The group may be asked to produce a single product or report and be given group rewards with bonus points if all members reach a preset criterion of excellence, or a student may be picked at random to represent the group and explain its conclusions to the class.

10. *Structuring Individual Accountability.* The purpose of group learning is to maximize the learning of each member. Lessons need to be structured so that each student's learning can be assessed and so that the groups provide individual members with encouragement and assistance.

11. *Structuring Intergroup Cooperation.* The positive outcomes within a cooperative learning group can be extended to a whole class by structuring intergroup cooperation. Bonus points can be given if all members of a class reach a preset criterion of excellence. Groups finishing early can be encouraged to help other groups complete the assignment.

12. *Explaining the Criteria for Success.* Evaluation within cooperatively structured lessons should be criterion-referenced. Teachers need to explain clearly the criteria by which students' work will be evaluated.

Teachers do not become proficient in using cooperative procedures by attending a workshop or reading a book. They must use cooperative learning procedures regularly for several years and be given classroom help and assistance.

13. *Specifying Desired Behavior.* The word "cooperation" has many different connotations and uses. Teachers will need to define cooperation operationally, specifying the behaviors that are appropriate and desirable within the learning groups. Beginning behaviors are: "stay with your group," "use quiet voices," and "take turns." When groups begin to function effectively, members may be asked to explain how to arrive at an answer or to relate what is being learned to previous learning.

Monitoring and Intervening

14. *Monitoring Students' Behavior.* The teacher's job begins in earnest when the cooperative learning groups begin working. Much of the teacher's time is spent observing group members to see what problems they have in completing the assignment and in working collaboratively. Many teachers also use student observers to gather information about the effectiveness of each group.

15. *Providing Task Assistance.* In monitoring the learning groups, teachers clarify instructions, review important procedures and strategies, answer questions, and teach task skills as necessary.

16. *Intervening To Teach Collaborative Skills.* When teachers find students who do not have the necessary collaborative skills and groups whose members are having problems collaborating, they intervene to suggest more effective procedures and behaviors.

17. *Providing Closure to the Lesson.* At the end of the lesson, students should be able to summarize what they have learned and should understand how they will use that information in future lessons. Teachers may wish to summarize the major points of the lesson, ask students to recall ideas or give examples, and answer any questions.

Assessing and Evaluating

18. *Assessing the Quality and Quantity of Students' Learning.* Students' work is assessed in terms of the preset criteria of excellence and teachers provide feedback.

19. *Evaluating How Well the Group Functioned.* The learning groups assess how well they worked together and plan how to improve their effectiveness. A common error of many teachers is to provide too brief a time for students to evaluate the quality of their collaborative process.

The Principal's Role

Implementing cooperative learning is not easy. Teachers may wish to start small by taking one subject area or one class, use cooperative learning procedures until they feel comfortable with them, and then expand into other classes.

Teachers do not become proficient in using cooperative procedures by attending a workshop or reading a book. They must use cooperative learning procedures regularly for several years and be given classroom help and assistance. This means that the principal must actively promote the sustained use of cooperative learning procedures by setting up a professional support system to provide continuous assistance in using cooperative learning procedures.

Principals alone can rarely provide teachers with all the support, encouragement, and feedback that they need. *Principals need to structure and manage a support system for teachers, but they should not try to be the support system.* Teachers should provide the basic support for each other.

Steps that principals may use to structure teacher support groups for implementing cooperative learning procedures in the classroom include (Johnson et al.,1984):

- Publicly announcing support for cooperative learning procedures.
- Recruiting and selecting competent and supportive teachers to participate in the professional support groups.

Principals alone can rarely provide teachers with all the support, encouragement, and feedback that they need. Principals need to structure and manage a support system for teachers, but they should not try to be the support system. *Teachers should provide the basic support for each other.*

- Informing teachers about the nature of cooperative learning through training courses or workshops, observing an experienced teacher, reading material, or consultants.
- Highlighting the goal of interdependence among members of a professional support group to work jointly to improve each other's competence in using cooperative learning strategies.
- Structuring the first few meetings of the group until members are able to structure them by themselves. Discussing their implementation efforts, jointly planning lessons and designing curriculum materials, and observing each other's implementation efforts are the major activities of the group.
- Providing the resources and incentives needed for the support groups to function.
- Ensuring that the support groups discuss how well they function and that they maintain good relationships among members. Most teacher professional support groups need considerable help and encouragement in discussing how well their meetings are going.
- Building yourself *in* as a member, not *out* as a consultant.
- Keeping a long-term, developmental perspective and protecting the teacher support groups from other pressures. Indicate that initial "start up costs" are to be expected and accepted. Mediate any conflicts that arise among members, and explain to interested parents the value of cooperative learning procedures.

Cooperative learning strategies in the classroom will increase important educational outcomes, and cooperative relationships among school staff members will tend to increase their job productivity and morale. Faculty meetings, school committees, curriculum writing teams, and special task forces will all function more effectively if there is a clear cooperative structure.

Exempli Gratia

During the past 10 years the authors have conducted extensive training of teachers and administrators throughout the United States, Canada, and Scandinavia. Several such sites are listed here.

The Cooperative Learning Center (202 Pattee Hall, University of Minnesota, Minneapolis 55455) is a resource for information about cooperative learning. Specific materials for different subject areas are available. Interested administrators should contact the center.

HOPKINS SCHOOL DISTRICT, Hopkins, Minn. Diane Brown, Facilitator.

One of the outstanding implementers of cooperative learning procedures is the Hopkins School District in Minnesota. The district has evolved a number of general procedures for institutionalizing cooperative learning:

- The teacher facilitator first gives a general awareness session to an entire school and asks for volunteers to become a school-based professional support group to work systematically on cooperative learning procedures. He or she then works with each teacher individually, first teaching a cooperatively structured lesson in the teacher's classroom, co-planning a lesson which they jointly teach, and finally co-planning a lesson that the teacher teaches while the facilitator observes.
- Each time the facilitator meets with a teacher, the teacher suggests new techniques or materials tailored to the teacher's subject area or to a specific problem student in the teacher's classroom. After a number of teachers are trained in a school, they begin meeting as a professional support group with and without the facilitator.

As an additional maintenance procedure, each month a newsletter is produced on "How To Help Students Work in Groups." These newsletters contain lesson plans and classroom activities that teachers can try out and/or discuss in the meetings of their professional support groups.

• Besides helping the professional support groups, the facilitator meets with curriculum directors, talks to parent groups, attends the principals' cabinet meetings, coordinates between regular classroom and special education teachers, and troubleshoots for teachers.

JEFFERSON COUNTY SCHOOL DISTRICT, Lakeland, Colo. James Metzdorf and Cherie Lyons, Staff Development Coordinators.

The Jefferson County School District has taken a teacher-oriented and multiple-entry approach to implementing cooperative learning. The teacher-oriented approach is first to provide teachers with basic training and then to respond to teachers' requests for further training and support rather than imposing cooperative learning at the administrative level. The multiple-entry approach means that after teacher interest is established in the district, cooperative learning is introduced in as many areas as feasible. The Jefferson County procedure is as follows:

• The introductory course on the systematic use of cooperative, competitive, and individualistic learning was given several times in the district for any teachers interested in taking it. This built a network of several hundred district teachers interested in using cooperative learning procedures.

• The course was then given a number of times for the staff of entire schools, or for teams of teachers from the same school on a demand basis. This began a process of having schools make cooperative learning a major focus of their staff development efforts.

In the cooperative classroom, students work together to accomplish shared goals. Students assigned to small groups learn the assigned material and make sure that the other members of their group learn it also.

• Jefferson County writes much of its own curriculum, so teachers experienced in using cooperative learning procedures were placed on curriculum writing teams. Cooperative learning procedures were written into first and second grade social studies/science and junior high school science curricula.

• Cooperative learning procedures were presented within district inservice courses as a major method of classroom management and decreasing absenteeism. The county identified a number of master teachers highly skilled in the use of cooperative learning procedures whose classrooms were then used as demonstration sites.

• The county next conducted a series of district courses on cooperative learning. These courses included:

— An introductory course on the effective and systematic use of cooperative, competitive, and individualistic learning procedures.
— An advanced course on teaching collaborative skills to students as an integrated part of cooperative learning.
— An advanced course on adapting specific curriculum areas to cooperative learning.
— A course showing principals how to support and supervise teachers using cooperative learning procedures.

• Jefferson County formed a regional center that allows surrounding school districts interested in implementing cooperative learning to use county personnel for inservice and basic training procedures.

Other Sites

A number of districts throughout North America exemplify the use of cooperative learning. All of the sites cannot be mentioned here, but listed below are several where teachers have succeeded in making cooperative learning procedures a major part of the way they teach.

In New Jersey, South Brunswick and Princeton school districts have talented secondary school teachers skilled in the use of cooperative learning. In Connecticut, the Greenwich School District is involving secondary teachers in cooperative learning. The Macomb Intermediate District near Detroit is actively implementing cooperative learning in the district. In Wisconsin, the Madison, Beloit, and Janesville School Districts have classrooms to visit. In Elgin, Ill., Sue Ford has done extensive work on cooperative learning as a teacher, as a principal, and as a trainer of other principals. The principal of Park School in Lincoln, Nebr., actively supports the use of cooperative learning.

The secondary science teachers in Austin, Tex., have been active in using cooperative learning for several years. The California Special Education Resource Network has been training teachers in a number of school districts throughout that state. Ethnic desegregation in San Diego School District includes training in the use of ethnically heterogeneous cooperative learning groups.

The Provincial Department of Cooperation in Saskatchewan, Canada, provides teachers to visit throughout the province. In Montreal, Albert Weiner has been working with the Baldwin-Cartier District.

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